THE SCIENTIFIC AMERICAN.

THE ADVOCATE OF INDUSTRY AND ENTERPRISE, AND JOURNAL OF MECHANICAL AND OTHER IMPROVEMENTS.

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THE SCIENTIFIC AMERICAN,

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(The Principal Office being at New York,)

BY PORTER & MALLERY.

RUFUS PORTER,—Editor.

Each number of this paper is furnished with from two to five ORIGINAL ENGRAVINGS, many of them elegant, and illustrative of NEW INVENTIONS, SCIENTIFIC PRINCIPLES, and CURIOSITIES; and contains as much Interesting Intelligence as six ordinary daily papers, consisting of notices of the progress of Mechanical and other *Scientific Improvements*,—American and Foreign Inventions; Catalogues of American Patents;—Scientific Essays, illustrative of the principles of the Sciences of Mechanics, Chemistry, and Architecture;—Instruction in various Arts and Trades;—curious Philosophical Experiments;—Miscellaneous Intelligence, Poetry, and, occasionally, Music.

This paper is especially entitled to the patronage of Mechanics and Manufacturers, being the only paper in America devoted to the interests of those classes; but is particularly useful to Farmers, as it will not only apprise them of improvements in agricultural implements, but instruct them in various mechanical trades, and guard them against impositions. As a family newspaper, it will convey more useful intelligence to children and young people, than five times its cost in school instruction. Another important argument in favor of this paper, is, that it will be worth two dollars at the end of the year, when the volume is complete, and will probably command that price in cash, if we may judge from the circumstance that old volumes of the "New York Mechanic," by the same editor, will now command double the original cost.

TERMS.—"The Scientific American" will be furnished to subscribers at $2, per annum,—one dollar in advance, and the balance in six months.

Five copies will be sent to one address six months, for four dollars in advance.

Any person procuring two or more subscribers, will be entitled to a commission of twenty-five cents each.

TERMS OF ADVERTISING.—For 10 lines, or less, 50 cents for the first, and 12 1-2 cents for every subsequent insertion.

The Height of the Ridiculous.

I wrote some lines once on a time
In wondrous merry mood,
And thought, as usual, men would say
They were exceeding good.

They were so queer, so very queer,
I laughed as I would die,
Albeit, in the general way,
A sober man am I.

I called my servant, and he came;
How kind it was of him;
To mind a slender man like me,
He of the mighty limb.

"These to the printer," I exclaimed,
And, in my humorous way,
I added (as a trifling jest,)
"There'll be the devil to pay."

He took the paper, and I watched,
And saw him peep within;
At the first line he read, his face
Was all upon the grin.

He read the next; the grin grew broad,
And shot from ear to ear;
He read the third; a chuckling noise
I now began to hear.

The fourth; he broke into a roar;
The fifth; his waistband split;
The sixth; he burst five buttons off,
And tumbled in a fit.

Ten days and nights, with sleepless eyes,
I watched that wretched man,
And since, I never dare to write
As funny as I can.

To a Note on St. Clair Bank.

I will not take the *ragged* elf,
In payment for my labor;
Your villainy's revealed itself,
You've robbed myself and neighbor.

Your very *face* is all a lie,
Your *promise* but a bubble;
You raise the price of all I buy,
And plunge mankind in trouble.

And when we ask you for the *cash*—
How well's the matter mended?
We find your *bank* "*is broke to smash,*"
Or, *hang you!* you're *suspended!*

For bank the farmer grows his corn—
The laborer gives his earning;
The student, like a sheep, is shorn,
In spite of all his learning.

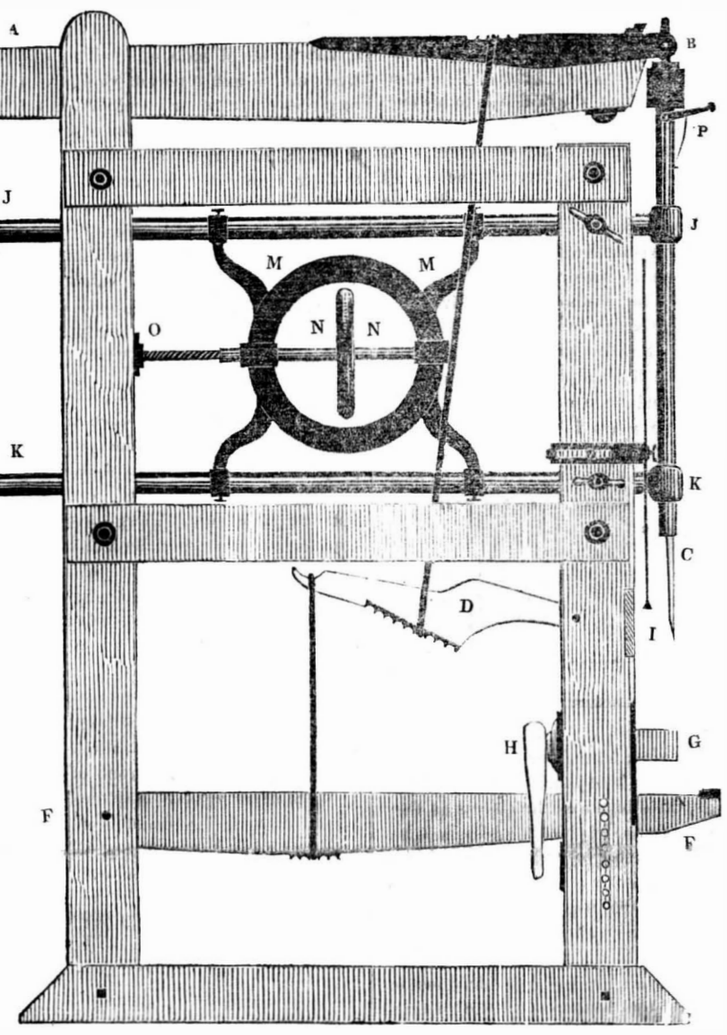
A Winter Scrap.

Our life is but a winter's day,
Some only breakfast, and away!
Others to dinner stay and are full fed;
The oldest man but sups and goes to bed!
Large is his debt who lingers out the day;
Who goes the soonest has the least to pay!

Chilly.

My toes are froze, and so's my nose,
The north wind shakes the pine;
It blows the snows in rows, I s'pose
In days of Auld Lang Syne.

FAY'S MORTISING MACHINE.



EXPLANATION.—The posts, feet, cross-bar, or side pieces, require no reference. The lever, A, B, is made of wood, with an iron bolster attached to the top, as shown at B, and governs the motion of the vertical slide, B, C, in the bottom of which is a socket, which holds the chisel. This lever is raised by a spring, which is placed and secured above the machine (but not shown in the engraving) and connected to the lever at B. It will be seen that this lever is connected by a long iron link, to the lever D, and that again to the treadle, E, F; so that when the operator depresses this treadle with his foot, the chisel, C, is forced down. At G is shewn the end of a horizontal rest, which is well secured by a screw-bolt connected with the wrench H, and supports the plank or timber while being mortised; the vertical rod, I, holding the same down, at the same time. The slide is guided by the box-rods, J J, and K K, and to these box-rods is attached a spider, M M, within which is a band-wheel, N, the axle of which is a screw which enters the nut O: so that by turning the hand wheel, the spider and box-rods are moved horizontally, as occasion requires, in adjusting the chisel to the work. It will be seen that the present position of the chisel is not that for working; but the slide may be turned to the right or left by means of the yoke P, and a notch in the under side of the crown-head, on each side, receives the yoke-lever, and thus confines the chisel in its right position.

We have no hesitation in saying that this machine is the most perfect in all points, that has ever been constructed and introduced for the purpose of mortising, either carriage or carpenters' work. It has been in use but a short time, but has already superseded all others, wherever it has been introduced: and even the patentees of other mortising machines, have in some instances abandoned their own inventions, and have adopted this. It has drawn a premium at the late Fair of the American Institute, and gained the decided approbation of all who have witnessed its operation. These machines are manufactured by Davis, Fay & Co., at Keene, N. H., and one of them may be seen in operation at the shop of D. Jacobus, No. 138 Wooster st., New York. That they are approved by the mechanics of Boston, will appear from the following certificate:

We, the subscribers, of Boston, Mass., having had one of Fay's Patent Mortising Machines in operation for some time, and believing it the best now in use, recommend it to others with confidence. Jonathan Goldsmith, O. R. Whiting, Eben Sears, Sears & Fitch, Adams & Littlefield, Stephen F. Wilson, Leach & Sawyer, Silas Kendall, Franklin Patch, Bates & Kelsey, Coolidge & Blanchard, Caleb Pratt, Wood & Joslin, Lincoln & Taylor, Downing & Colby, James M. Cook, Robertson & Moulton, Rufus Rowell, Chauncy Page, O. & A. L. Burbank, J. E. Bartlett, G. W. H. Parker, W. H. & J. R. Warner, Solomon S. Gray, James Bryne, William A. Jndkins.

PROGRESS OF CINCINNATI.—As late as 1809, Cincinnati was not able to sustain more than one newspaper, and at a period ten years later—1819,—there were but three in existence. As late as 1832, we had only fifteen periodicals; three daily, two semi-weekly, seven weekly, one monthly, and one quarterly publication. There are now published here twelve daily, fourteen weekly, and fourteen monthly periodicals, besides directories and almanacs of various descriptions. Ten of these dailies issue weeklies, and three of them tri-weeklies also. As late as 1811, there was but one house of worship in Cincinnati. As late as 1827, there were but twelve; in 1832, twenty-five.

LIVE FISH.—One of the benefits of a railroad is to convey the fine lake fish alive to distant places. The Troy Budget says that last Friday a quantity of black bass caught by seine in Saratoga Lake, were boxed up and sent to the village, five miles, and from there to Troy a distance of 31 miles; making 8 hours from the time they were taken out of the water before they arrived at Troy. When the box was opened many of them showed signs of life, and on putting one in a tub of water, it swam round as merrily as though it had not been a minute out of its natural element.

RELIGION OF A DOG.—Man—said Robert Burns—is the god of the dog—he knows no other; and see how he worships him! With what reverence he crouches at his feet; with what love he fawns upon him, with what dependence he looks up to him, and with what cheerful alacrity he obeys him. His whole soul is wrapped up in his god; and these powers and faculties are ennobled by the intercourse. It ought to be just so with the Christian, but the dog puts the Christians to shame."

BROOM CORN PAPER.—A specimen of paper made from broom corn stalks has been shown in Philadelphia. The Philadelphia Inquirer alludes to it as an excellent article, remarkable for toughness, flexibility and body, and another important matter, offered at a very low rate. The manufacturers deserve credit for their enterprise.

IRON MOUNTAIN.—The St. Louis New Era, of the 13th says:—We understand that the iron works of the Iron Mountain Company, in St. Francis county, will speedily go into operation. This will give employment to many hands, will supply a large part of the state with a useful article, and will be a start in a new business that is destined to become great and prosperous.

That Tarnal Railroad.

(AS SPOKEN AT THE FULTON INSTITUTE.)

Je whiticans, whew? Wal, just manufacture me into a double refined spinning jenny and set me going in fifty acres of cotton, if ever I come across such a rarin, tarrin, ripping, snorting, double-revolving piece of machinery, from creation down to my most marvellous deliverance just now, as the one give me a chase down your railroad. I hearn some time ago that there was rich doings goin on at the Fulton Institute, so as I like things that open rich, I made things about right round hum and broke for here. I come across through the country, and struck your railroad, and was plying it about four knots to the hour. Now I had hearn tell of locomotives, but never dreamed of seeing one alive and kicking; but about two miles from here, I hearn something behind me coffin, sneezin and thundering, and I looked around; sure enough here she came down after me, pawing the airth up and splitting the road wide open, with more smoke and fire flying than or't to come out of a hundred burning mountains, with about a dozen wagons follerin arter her, and to save her tarnal, black, smoky, noisy neck, she couldn't get clear of them. I don't know whether they scared her up or no, but here she come foaming at the mouth—with her teeth chock full of burnin red hot coals, and she pitched right strait at me as if she was going into me like a thousand of brick—I couldn't stand it any longer, so I wheeled round and broke down the road and began to make gravel fly in every direction. No sooner had I done that than she slpit right after me, and every jump I made she squealed like a thousand wild cats! She begin to gain on me comin up a little hill, but we come round a pint to a strait level in the road. Now, thinks I, I'll gin you ginger, as I am great on a dead level, so I pulled to it and soon got myself under full speed, and then she began to yelp, and howl, and cough, and stamp, and came on full chizel and made the hull arth shake. But I kept on before her, bouncing at the rate of twenty feet every pop, till I got to a turn in the road, and I was under such a headway that I couldn't turn, so I tumbled head over heels down a bank by a house, and landed with my head and shoulders cosmillick right into a swill barrel, and my feet stuck out behind, and up in the air! Just at the time the locomotive found I had got away from it, it commenced spitting hot water into me, and just literally spattered all the part of me that was left sticking out of the barrel. I thought in my soul that Mount Vesuvius had busted some place in the neighborhood. But do you suppose I staid there long? No sir! I just walked right through that barrel and come out at the other end so quick that it really looked ashamed of itself.

Now, here I am, a rale self-propelling double-revolving locomotive Snolly Goster, ready to attack anything but a combination of thunder-lightning smoking railroad iron and hot water.—(Cincinnati Com.

Curious Mechanism.

Among the descriptions of mechanism, calculated to excite popular curiosity, the following from Brewster's Letters on Natural Magic is very striking:—

One of the most popular pieces of mechanism which we have seen is the magician, constructed by M. Maillerdet, for the purpose of answering certain given questions. A figure, dressed like a magician, appears seated at the bottom of the wall, holding a wand in one hand, and a book in the other. A number of questions ready prepared are inscribed on oval medallions, and the spectator takes any of these he chooses, and to which he wishes an answer, and having placed it in a drawer ready to receive it, the drawer shuts with a spring till the answer is returned. The magician then rises in his seat, bows his head, describe circles with his wand, and consulting the book as if in deep thought, he lifts it towards his face. Having thus prepared to ponder over the proposed question, he rises his wand, and, striking with it the wall above his head, two folding doors fly open, and display an appropriate answer to the question. The door again closes, the magician resumes his original position, and the drawer opens to return the medallion. There are twenty of these medallions, all containing different questions, to which the magician returns the most suitable and striking answers. The medallions are thin plates of brass of an elliptical form exactly resembling each other. Some of the medallions have a question inscribed on each side both of which the magician answers in succession. If the drawer is shut without a medallion being put into it, the magician rises, consults his book, shakes his head, and resumes his seat. The folding doors remain shut, and the drawer is returned empty. If two medallions are put into the drawer together, an answer is returned only to the lower one. When the machinery is wound up, the movements continue about an hour, during which time about fifty questions may be answered. The inventor stated that the means by which the different medallions acted upon the machinery, so as to produce the proper answers to the questions which they contained was extremely simple.

NEWSPAPER BORROWER—A GOOD JOKE.—A joke which we copy for the amusement of those who annoy the readers of a newspaper by sending to borrow it, appears in the Baltimore Sun, as a sort of commentary to a paragraph which appeared in the Ledger.

A Mr. S. sat reading the paper at home, in the morning before leaving for his store, when the boy of a neighbor entered, with the usual way:—"Mr. S., pappy wants to borrow your Sun a few minutes, this morning."

"Tell your pappy," said Mr. S., "that I am using my Sun, but—" drawing a penny from his pocket and handing it to the boy, "*there's a penny* which I am *not* using just now, with which he can buy one. Tell him he needn't put himself out of the way to return it to-day. I will send for it when I want it, the same as I frequently have to do for my paper."

Old Jokes.

Having been disappointed of receiving the November list of Patents, we substitute a column of old Joe Millerisms. If our readers have not seen or heard them before, it is time they did.

What are you always hollering for, when I am riding by? said a nabob to Bob. And what are you always riding by for when I am hollering? said Bob to the nabob.

An Irishman was speaking of the excellence of a telescope. Do you see that wee speck on the hill yonder? That now is my old pig, tho' it is hardly discernable; but whin I look at him with my glass it brings him so near that I can plainly hear him grunt.

I and prother Hans and two other togs vas out hunting next week, and we trove nine woodchucks into a stone heap, and kilt ten out of the nine before tey cot in.

"If I find my wife up when I get home," says drunken Davy, "I'll give her a thrashing. What business has she to sit up all night wasting fuel and light, eh? And if I find her in bed, I'll whip her, that I will; what business has she to go to bed before I get home?"

An Indian complained to a retailer that the price of his liquor was too high. The latter in justification said that it cost as much to keep a hogshead of brandy as to keep a cow. The Indian replied, "may be he drink as much water, but he no eat so much hay."

Well, Patrick, asked the doctor, how do you do to-day? O dear doctor, I enjoy very bad health intirely. This rhumetis is very distressing indade. Whin I go to sleep I lay awake all night, and my toe is swelled up as big as a goose's hen's egg, so whin I stand up I fall down directly.

Now, Sam, if you don't leave off licking lasses I'll lick you. No you don't, for I can lick you and lasses tew.

Pat, why is it you can never say tea? Tay, is it? In course I can say tay. Yes I know you can say tay, but you can't say tea. And surely 'twas tay I said as weel as yoursilf.

Heie! Cæsar, dat you? Tought you gone beyond never, as the clam said to the lobster. Dats a fac, Sip, so I did: but bad penny will come back, as fox said by the grapes.

Recollect, sir, said a tavern keeper to a gentleman who was about leaving his house without paying his reckoning, recollect, sir, if you lose your purse, you didn't pull it out here!

My dear, I believe your lamp went out before I got home last night, remarked a gentleman to his lady at breakfast. True, replied the lady, but then you know the sun was up. Nothing more said.

A late writer says: I once had a constant and troublesome visiter, whom I tried many ways to get rid of. First, I essayed smoke, which he bore like a badger—then I tried fire which he endured like a salamander; at last I lent him five dollars, and I have never seen him since!

There is said to be a young lady in Maine, so very modest that she can not be prevailed upon to speak the *naked* truth.

No smoking allow'd here, said the steward of a steamboat to an Irishman. I'm not smoking aloud, your honor,' was the reply.

A gentleman passing one of our new buildings, called out that he had a bit of brick in his eye.—Then come here, exclaimed Pat, with a load on his shoulder,—come here my honey, and I'll put a little mortar to it, and then you'll have a *wall* eye.

Say Pat, are the days any longer in Ireland than in this country. Longer, aye, you may well say it, and not only longer, but there are a great many more of them.

I see the villain in your face, said a western judge to an Irish prisoner at the bar. May't please your worship, replied Pat, that must be a personal reflection, sure.

A young lady having engaged to be married took occasion to change her mind, and brought the aid of a friend, saying—do help me out of this knot. O certainly, replied her friend, that's easily done as it s only a *beau*-knot.

Jimmy, do you go to school? Yes sir, to the school kept by Miss Post. Miss Post! not a *whipping* Post, I hope? O, no sir: she is a *guide* Post.

Just step into the street and I'll give you a cowhiding, said a rowdy to an Irishman. By my sowl, now, replied Pat, and I wouldn't do it if you'd give me two of them.

Now I tell you what it is, massa, you can't no more make dat plough keep stick in the ground, dan chase a shad up a' cimmon tree, tail foremost, with a mullen stalk in frosty morning.

An exquisite having ordered a pair of drab pants, declined taking them when finished, on the plea that they were too *light* for the season. To remedy the matter, the tailor lined them with *sheet lead.*

It is suggested that all the dogs of New York should be restricted to *Bark*-lay street; that the cats should be sent to the *Mew*-seums, and the mice to *Nibble*-o's Garden.

Well, Susan, what do you think *now*, about all married ladies being happy? Why, I think there are more *aint* that *is*, than there *is* that *aint*, as to that, any how.

Mind dat, massa: when sun rise bery arly in mornin, and set afore he rises, there'll be sartin sign of rain fore soon, dats a fact.

An Irishman seeing his friend lying dead drunk in the gutter, exclaimed, Ah, poor Jammie, an' surely I wish I could take half your disease on meself.

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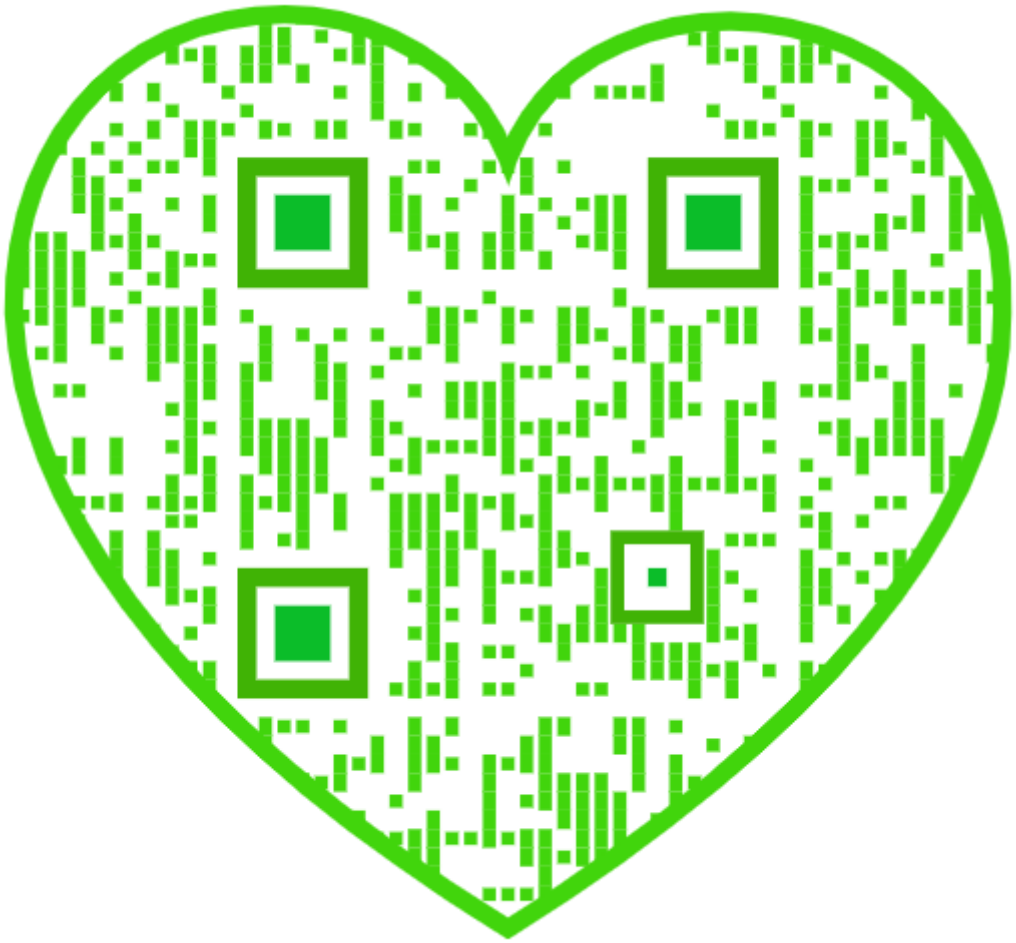
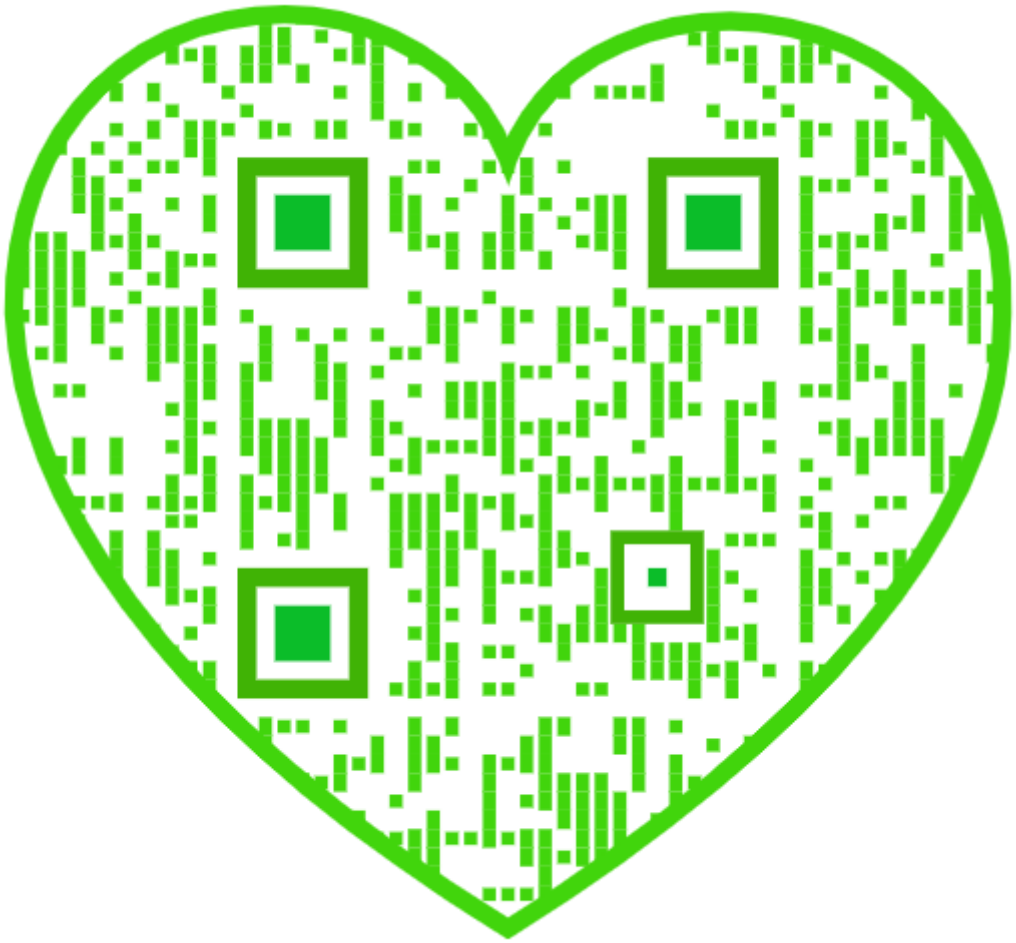




SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, DECEMBER 18.

To Correspondents.—E. A. is informed that "Davids' excellent black ink," is sold by Mr.Groom, 82 State street, Boston: also by Marsh, Cornhill Square. S. P. F. and J. E. W. will receive due attention.

Breach of Promise.—It was our intention to have presented the plan of a ship-railroad in this number, as was mentioned in our last: but circumstances having rendered the insertion of the Improved Mortising Machine in this number indispensible, the other subject is deferred, but will appear next week.

Help Wanted.—Notwithstanding our efforts, and those of our friends, it appears evident that not one person of a hundred, in the United States, have yet heard of such a paper as the Scientific American. Will those who receive the paper do us the special favor to mention it to others.

Science of Mechanics.

Continued from No. 13.)

Inertia and Momentum.—But few people are able fully and clearly to comprehend the laws of momentum as developed by its effects in projections under different velocities. It is a commonly entertained opinion, with those who have not given particular attention to the laws of mechanical motion, that the same quantity of force and power that would project a ball of ten lbs. weight, with a velocity of ten feet per second, would also be sufficient to project a five lb. ball with a velocity of twenty feet per second. And on this erroneous opinion, many have based their calculations with regard to the operation of new constructions of machinery, and have as often been disappointed in the results: the fact being that double the power is required to project the smaller ball with double velocity. Inertia and momentum are generally defined as being distinct properties; or at least as being peculiar to different circumstances; but when strictly considered, they are found to be so essentially and precisely the same thing, in all points, that we know of no case in which either term would not apply with equal propriety. The term momentum, is usually applied to designate the inertia of bodies in motion; but what body is there which is not in motion? If a man is riding in a railroad car, at the rate of twenty miles per hour, he may hold an apple on his open hand, or place it on a table, and it will remain relatively stationary; this, then, is inertia: but let him throw, or roll the apple with a velocity equal to twenty miles per hour, and in a direction contrary to that of the car, and it will be apparently projected with as great force, and to as great a distance, as if it had been thrown by a man who stood on terra firma, at the time. This, then, is momentum, although the apple during its apparent projection, has been as completely stationary as if it had been at rest on the surface of the earth. But suppose it is to be projected in the contrary direction. In this case, its velocity is doubled—at the rate of forty miles per hour, and that without any greater exertion on the part of the projector, than that required to overcome its velocity as before mentioned. Now it may be contended in opposition to our theory, that as a certain force was required to give the apple its first velocity of twenty miles per hour; and an equal force again applied by the man within the car, will give it an equal additional velocity, it is proved conclusively that a double force—or a single force repeated, which is the same thing—will produce double velocity. Now we come to the point: the fact and truth is, however, incomprehensible it may appear, that the man being himself in motion when he projects the apple, he *does apply three times as much power* (not force) to the apple, as was required to give it its first velocity; and the apple is in this case projected with *four* times as much force and momentum, as it was in its first velocity of twenty miles per hour; and although there has been apparently but two quantities of force applied, the apple will travel by its momentum *four* times as far, or require four times the resistance to stop it, that it would under its first single velocity.

To be continued.

The Travelling Balloon.—We have recently heard some inquiries concerning the progress of the travelling balloon, and the prospect of issuing certificates, &c.·, to which we may frankly answer, that we have been greatly disappointed with regard to our anticipated circulation, and have but little prospect of surplus profits sufficient to put forward the balloon for six months to come; and further, that we find such a rank and bitter prejudice against the project, that we might expect a large part of our present patronage to fail, if we were known to be actually engaged on the subject. Our intention is, however, to issue proposals in a new circular, and if the requisite funds can be raised for making the experiment in the spring, our original subscribers will be remembered as stockholders.

A Powerful Propeller.—A fin-back whale having very carelessly made his appearance in Provincetown harbor last Monday, some young men rowed out to salute him, and one of them fastened a harpoon firmly in the whale's back, when he immediately started off at a violent rate towards Truro; and having drawn the boat about five miles in as many minutes, the jolly crew, not choosing to make a long voyage, at that rate of speed, cut the rope and returned; generously permitting the whale to retain the harpoon for his trouble.

Knavery.—A New Jersey judge has acquitted a man indicted for perjury, on the ground that the oath was taken with the uplifted hand instead of the insignificant form of kissing the book: and Elliot, who deliberateiy shot young Kendall at Washington, has been acquitted on the ground that he killed his victim in self-defence.

Galvanism.

(Continued from No. 13.)

Electro-plating with Silver.—For this purpose, four batteries, (or four pairs) are used, connected consecutively, as described in No. 11, with the negative and positive wires connected, extending to a porcelain font. The solution to be contained in the font for this purpose is prepared as follows:—To one ounce of nitric acid in a tumbler, add one ounce of water and half an ounce of silver. Any silver coins will answer for this purpose; and when the silver is dissolved, or when ebulition ceases, add, in small quantities, a solution of muriate of soda (common table salt,) which will throw down the silver in a white opaque precipitate. Continue adding the saline solution. as long as the precipitation of the silver is produced thereby; then let the silver precipitate settle, and pour off the acid, and fill up the tumbler with pure water. When the silver has again settled, pour off the water and again replenish it, thus washing the silver from the nitric acid two or three times. Then pour on to the precipitate of silver, in small quantities, a solution of cyanuret(or cyanide)of potassium,—carefully avoiding the fumes that may arise therefrom—till the precipitate is re-dissolved by the cyanuret. Then pour the solution into the font,and add a quart of pure water,and it is ready for use. The end of the positive wire must be flattened and made bright, and a strip of platina plate an inch long and 1-8 wide, must be soldered or lashed thereto, and project some distance beyond the end of the wire; for the wire being of copper, would be corroded, if permitted to dip in this solution. The article to be plated, having been well cleansed, must be attached to the end of, or be kept in contact with, the negative wire. Then, the battery being charged for action, the end of the platina plate is immersed in the solution, and the article to be plated, is also immersed at from two to six inches distance from the platina (which is termed the positive pole-point,) and a deposition of pure silver will immediately commence, on all parts of the immersed article. Several articles may be plated at the same time, by being immersed and kept in contact with either the negative wire, or with another article that is in contact with the wire. For this purpose, and the better to accommodate the articles to be plated, the negative wire may be made to pass through the solution, near to the bottom of the font; and all the articles may be laid thereon, during the process. These articles must be taken out of the font whenever the surface of the deposited silver appears of a rough white or yellow color, and be rinsed in water, and brushed over with fine whiting till the surface appears bright, and again returned to the font, unless the coating of silver is judged to be of sufficient thickness. When the process is completed the articles may be brushed with whiting and washed with soap and water, and dried with box wood saw-dust. The metals most suitable to be plated with silver, are brass, copper, and German silver. Iron, steel, and pewter may also be substantially plated with silver, but as a different apparatus and process is required, the subject will be deferred. The process of plating with gold will appear in our next number.

To be continued.

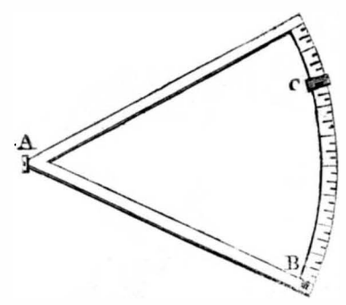
Improvement in the Manufacture of Iron and Steel.—Mr. J. J. Osborn, of Macclesfield, has patented some "Improvements in the Manufacture of Iron and Steel, and in furnaces to be employed for such or similar manufacture." These improvements consist, first, in a composition to be added to pig-iron or cast-iron, when in a melted state, consisting of 2lbs. common salt, 2lbs. iron, 15lbs. iron slag from the forge, for an ordinary charge of 2 to 4 cwt. of pig-iron, the ingredients to be well incorporated, and, by means of an iron spoon, added in small quantities at a time, to the melted mass, and then stirred up. The iron is then to be puddled and heated, in the usual way of making bar-iron. For making sheer-steel, a mixture of 2 lbs. of common salt, 2 lbs. of quicklime, and 2 lbs. pearlash, or 4 lbs. carbonate of soda, mixed, and added to a charge of 5 cwt. of pig-iron, melted at a white heat, 20 lbs. slag to be added.

The mass, after being properly worked, is made into balls, hammered and rolled. For cast steel the mass is treated in the same way as last described, as regards the mixture, but not puddled or balled; a blast furnace may be used. The charge being tapped, and run into a bed, for making a plate, 1 1-2 inch thick, the slag will rise to the surface, and upon being cooled by sprinkling water, it will be easily seperated when cold. The plate is then broke up, and re-melted in crucibles or pots, in a blast furnace, in the following manner:—To 28 lbs. of the plate obtained as last described, add 1 1-2 lbs. green bottle gass, 8 oz. pearl ash, or 16 oz. carbonate of soda, and 8 oz. black oxide of manganese, all to be stirred up in the melted iron; and when cast into ingots cast steel will be formed. The second part of Mr. J. J. Osborne's invention relates to the peculiar construction of a blast furnace, consisting of a furnace formed of an iron pot, 2 feet six inches high, and 3 feet in diameter, with 8 holes at equal distances, near to the bottom, and round the side, to admit the blast more equally. The pots are lined with fine clay, about 4 inches thick; in the centre of the pot there is a stand, formed of fine bricks, one foot high. The pot is placed within a can, made of firm iron plates, 2 feet 6 inches high, and 3 feet 8 inches in breadth, bolted together, and cemented, so as to form, with a circular plate at top, an air-tight chamber, with a space of 3 inches left round the pot. The blast is first admitted into this outer can, which forms an air chamber, by two or more openings, by which means the air is more equally distributed through the several openings, into the pot.

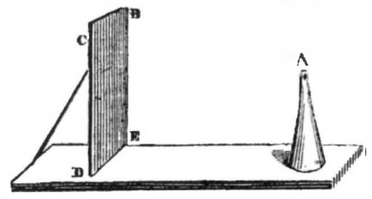
Ground Coffee.—A coffee roasting and grinding shop in Boston, took fire recently, and a part of the apparatus being thrown into the street, exposed considerable quantities of burnt peas, barley, &c., all ready to be manufactured into pure and genuine ground coffee. We believe it has been generally understood that most of the "warranted pure" ready ground coffee, in the market, is of northern growth.

The art of Painting.

(Continued from No. 13.)



Landscape Painting.—A beginner in the art of drawing landscape views, will sometimes find it difficult to measure the relative proportions of distant objects, by the eye alone, but may readily prepare an instrument similar to that represented in the cut, (a plan of which was furnished us last week by Mr. J. Emery, of Bucksport, Me.) This sextant may be ten or twelve inches in length, made of wood, or of stout pasteboard merely, with a scale of inches on the curved part. It has a small upright projection at A, through which is a small orifice; another upright or projecting pin at B, and a third at C. The upright at C is moveable, being fixed on a sliding clasp, which may be moved to the right or left on the arc. This instrument may be used in either a horizontal or vertical position; and when the practitioner would observe the visual height of a distant object, he has only to bring the orifice A to his eye, raise the sextant till the pin B ranges with the bottom of the object, and remove the sliding clasp C till the pin ranges with the top thereof: the inches on the scale, between the projecting pins, will shew the height that the object is to be drawn. By a similar process, the visual breadth of an object or the distance between the two objects, may be readily ascertained. The method, which gives the most perfect perspective, however, is that of sketching on plate glass. For this purpose, a small conical post, A, having a horizontal orifice through the head thereof, is placed on a board or table, and a square piece of plate glass, B C D E, having been prepared by a very thin coat of dilute copal varnish on one side, is placed and secured in a vertical position, at a convenient distance from the post.



This glass being placed in the direction of the object to be drawn, the learner may bring his eye to the orifice, and trace with a lead pencil on the varnished side of the glass, the outlines of the objects as they appear. He may afterward place the glass in a horizontal position, on a sheet of white paper, and lay a piece of transparent paper on the glass, and again trace the outlines on the transparent paper. When this is done, he may take a sheet of thin white paper, and rub one side of it with black lead or dry red ochre, and place it with the colored side down on the board or ground that is to receive the picture; and upon this paper, place the transparent paper on which the tracings are made. Then by re-tracing the outlines with a pointed piece of hard wood, the lines will be conspicuously transferred to the prepared ground. This process may appear rather tedious, but by the practice thereof, the learner may acquire more knowledge, and make more proficiency in the art of perspective drawing, in one hour, than in three days' practice of the geometrical system. The learner should accustom himself to measuring distances and proportions by the eye alone, however, without depending on any other apparatus than a pencil. In designing landscape pictures, the learner will find an advantage in first making his sketches on paper, shading the objects boldly with an extra-black lead pencil, rubbing out and correcting as occasion may require, till he has arranged the objects to his taste. It not unfrequently occurs in this branch, that some near and prominent object is required to be drawn first, and the picture filled up with grounds and distances afterward, with minor subjects so arranged as to show the first to the best advantage: but in the painting process, the distances are first painted, and the most prominent are finished afterward. The heightening of objects with delicate touches of very light colors, usually constitutes the finishing process of landscape painting in oil colors: but in painting with water colors on paper, the order is in some measure reversed. In this branch, the artist depends on the transparency of the colors, seldom uses white, or very light opaque colors, but proceeds on the principle of transparent painting, and applies a less quantity of paint, where the lightest colors are required, and leaves the white ground uncolored, where white is required, instead of using white paint. On this account, the process of landscape painting on paper with the ordinary drawing colors, is slow and laborious, as all the lights must be preserved, and cut round by darker colors on deeper shades. And as no light object can be painted on a colored ground, it is indispensable to paint the nearest objects first, and represent the distances afterward, cautiously avoiding the extension of any color beyond its proper limits. But the colors which are used in scene painting, or landscape painting on walls of rooms, are even more perfectly opaque than oil colors; and the art of applying them, which we shall describe at length in future numbers, is more attractive and interesting, and more generally useful than any other branch, usually considered under the head of *fancy painting*.

To be continued.

The New York Sun, which, on account of its immense circulation, has usually renewed its type once in two months, appeared yesterday morning in new dress and style decidedly superior to its ordinary "new rig." Every person who is accustomed to read the paper, will have discovered the improvement at the first glance.

Curious Arts.

To make a strong Water-proof Glue.—Dissolve common glue in water in the usual way, and dip into it some clean paper, sufficient to take up an ounce or more of the glue. When the paper is nearly dry, roll it up, or cut it into strips, and put them into a wide-mouthed phial or flask, with about four ounces of alcohol; suspend this over a fire so as to boil it gently for an hour, having the cork set in slightly to prevent its taking fire, but not so as to prevent the escape of the vapor entirely. Then take out the paper (the only use of which is to give the glue more surface for the action of the alcohol) and add one ounce of gum-shellac in powder; continue the heat, often shaking the mixture till the shellac is dissolved. Then evaporate it to the proper consistence for use. *Note.*—Many experiments have been made, in order to discover some aqueous size, that when dry, would resist moisture: and some have recommended skimmed milk, and others vinegar, as a menstruum for the glue. But it does not appear from trial, that either of these are but very little better for this purpose than water; nor is it probable that any similar composition of size will resist moisture much better than common glue, especially if it be mixed with sulphate of lime, or some similar substance by way of support.

To render Wood, Cloth, or Paper Fire-proof.—Dissolve one ounce of alum, half an ounce of sub-borate of soda, and half an ounce of cherry-tree gum, in half a pint of vinegar. Dip any cloth or pieces of paper, or wood, in this mixture, and let them dry;—they cannot afterwards be ignited so as to blaze, but may be considered safe with regard to their taking fire by accident. *Note.*—Though this composition is a very powerful preventive against fire, it is too complex for common use, and has too much color for white cloths or papers; but a solution of one ounce of sub-borate of soda in a pint of water is very transparent and harmless, and will answer in most cases nearly as well.

Atmospheric Railways.—We have said but little on this subject hitherto, for the reason that we have had but little confidence in the ultimate success of the project; but the projectors or present proprietors have evinced extraordinary perseverance, and seem determined to make their plan popular at all events. They have expended many thousands on the experiment, and report apparently brilliant success: but after all this, the stubborn fact remains, that the plan lacks simplicity, being complicated in its construction, and requiring much accuracy of finish, and consequently, difficult to keep in repair. We still retain the opinion, that the atmospheric railway, can never succeed to supercede the ordinary mode of propelling the trains by locomotive engines, although it may be preferred on some favorite sections of road of moderate length. As some of our readers may not be acquainted with the peculiar construction of this kind of railroad, we shall add a brief description. The rails of the atmospheric railway, are the same as in other railroads, but it is furnished with an iron pipe which is placed between and parallel to the rails, and extending the whole length of the road. A cylindrical piston is nicely fitted to the interior of this pipe, and is driven through the pipe by atmospheric pressure, in consequence of a partial vacuum being produced in the forward section of the pipe, by the power of a steam engine which is stationed at the end of the road, or of a section thereof. That this piston may be connected to a train of cars for the purpose of propelling them, a crevice or seam is left open on the upper side of the pipe, through which a plate of iron projects from the piston, and this projection is connected to the cars. This crevice is closed by two strips of leather which are attached to the outside of tha pipe, and close up, or come in contact at the top, so as to exclude the external air from the interior: but the connecting plate, being sharp at the edges, separates the strips of leather as it passes, but not so as to admit the external air. We have thus explained the principle without giving a minute description of the mode of connecting and adjusting the several parts and mode of management.

Education in the different States.—Every true American, must feel interested to know the comparative state of education in different sections of the Union, and must feel some concern to see how degradingly ignorant the people of some of the old states are, in comparison with others, or even with the newly settled and thinly peopled territories. It will be seen by the following descending scale, from the census of 1840, that in some of the southern Atlantic States, there are fifty white persons who can neither read nor write, to one in Connecticut, in proportion to the white population: and that even in the District of Columbia, the seat of the concentrated wisdom of the nation, the proportion of those who can neither read nor write, is nearly equal to those in Wisconsin Territory. In Connecticut, the white persons above the age of twenty-one, who can neither read nor write, are 1 in 311; in New Hampshire, 1 in 159; Massachusetts, 1 in 89; Maine, 1 in 72; Vermont, 1 in 59; Michigan, 1 in 44; New York and New Jersey, 1 in 36; Pennsylvania, 1 in 22; Ohio, 1 in 18; Iowa, 1 in 17; Louisiana, 1 in 16; District of Columbia, 1 in 16; Maryland and Wisconsin, 1 in 13; Indiana and Mississippi, 1 in 10; Florida, 1 in 8; Illinois; Arkansas and Missouri, 1 in 7; Delaware, South Carolina, Virginia, Alabama and Kentucky, 1 in 6; Georgia, 1 in 5; North Carolina and Tennessee, 1 in 4.

Liberality of Factory Girls.—A lad having lost his arm by getting entangled in the machinery, in one of the Lowell mills, the operatives readily made up the generous sum of three thousand dollars for the unfortunate boy,—an instance of sympathy and liberality without a parallel, and speaks well for the "white slaves of the North."

Dark Nights.—A city cotemporary complains that the street lamps are not lighted on *moon nights* and argues that if we had a moon it could not shine nor give light in such dark nights as some we have had lately.

VARIETY

There have been one thousand and seventy-seven arrivals of vessels in the harbor of Chicago, Ill., during the last seven months. It must be a great *lake-port.*

Mr. Bradley Pease, late of New Orleans, deceased, has left about $4000 worth of property, which has found no claimant. His relatives are said to reside in Vermont.

Sixty barrels of sun-flower seed have been recently brought from Keokuk to St. Louis, for a market. The sun-flower flourishes on the western prairies, without cultivation.

An orange tree, in the garden of Mrs. Paramor, in Florida, has produced this season, ten bushels of oranges, of fine flavor and good size. The tree is but ten years old.

We are informed that Mr. Ellsworth, former Commissioner of Patents, is assisting Mr. Burke, in the preparation of the Commissioner's Report, for the present year.

Mr. J. Morrill, who keeps a hotel at Sherburne Falls, Mass., recently made a present of his entire stock of liquors, to a Temperance Committee at that place. Quite a treat.

Somebody remarked during the recent slippery time, that "nobody looked higher than their feet, though in some instances they had to look upward to see *them.*

It is estimated that 300,000 pumpkin pies wer eaten in Connecticut on Thanksgiving day: enough to cover five acres, or extend, if placed in a row, about 45 miles.

Great excitement still prevails among the Cherokees: eleven Indians have been killed by the murderous banditti, and several hundred Cherokees were in pursuit of them.

During the last week in November, 16,689 barrels of flour were transported "over the mountains" by the Western Railroad to Boston. That road is performing wonders.

The supply of anthracite coal sent to market from the Pennsylvania mines in 1845 will have reached nearly 2,000,000 tons. 10,400 tons were sent from Schuylkill last week.

The St. Louis Reporter states that the price of wood in that city, is from six to eight dollars a cord. The people of that section must look out for coal mines.

Snow is reported to have fallen the depth of three feet in Michigan City, Indiana; and in many places south of Kentucky snow has fallen to the depth of one foot.

It is asserted, by an eminent London baker, that twenty pounds of American flour will make two pounds more of bread than the same quantity of English flour.

Mr. E. L. Kimbrough, of Alabama, has raised three "sweet Carolinas," the aggregate weight of which is *nineteen pounds.* They would be curiosities here.

The Sultan Mahomed II. being dissatisfied with a picture of the beheading of John the Baptist, drew his scimeter and struck off the head of one of his slaves, to illustrate the defects in the picture.

It is said that every mile of railroad requires eight acres of land. On this estimate the 1800 miles already constructed occupy upwards of fourteen thousand acres.

Jackson the "American Deer," lately ran ten and a half miles in fifty-seven minutes, on the Canton course near Baltimore. This feat is without precedent.

A meeting of citizens has been called at East Cambridge, to concert measures for abolishing the toll and rendering the bridge between that place and Boston, free.

The authorities of Denmark have adopted the guillotine as the instrument of capital punishment in that country instead of hanging. Quite an improvement truly.

The company of Ojibbeway Indians, have visited, by invitation, the King of the French, at St. Cloud, where they met with the King and Queen of the Belgians and all the royal family.

A lady was recently detected in stealing lace from the counter of a shop in London. She had £8,000 ($38,000) with her, which she offered, to be released; but this being refused, she was committed.

The cost of tippling, in the United States, has been estimated at $100,000,000, a sum sufficient to build a city of 100,000 good dwelling houses—annually.

The number of spindles running in the vicinity of Portsmouth, N. H., is estimated at a hundred and ninety-two thousand.

Some writer shrewdly observes, that those people who are much in the habit of paying compliments, seldom pay anything else.

The Choctaws are expected to petition Congress during the present session, to be allowed a delegate on the floor of Congress.

We hear of good sleighing all the way out west and all the way down east, except at Boston, where it is said to be half way between little and nothing.

Mehemet Ali, an Egyptian, is making splendid preparations for the marriage of his daughter. The diamonds alone are valued at 5,000,000f., $960,000.

George Howell, who has been recently sent to Moyamensing prison for pocket picking, is said to p ossess property to the amount of $10,000.

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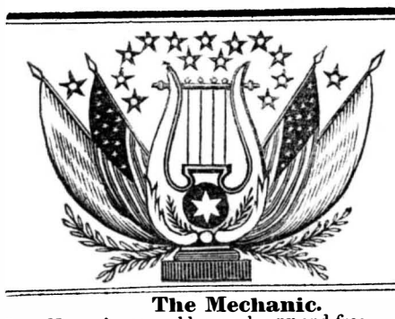


The Mechanic.

I am Nature's own nobleman, happy and free,
A peer of the realm might well envy me,
For the land of the eagle has given me birth,
And my sons are all freemen that meet round my hearth.

Your cities, now rising in beauty and might,
Whose palace-like towers are fair to the sight,
My hands helped to build them, my strength lend its aid,
And by the sweat of my brow your proud cities are laid.

The ship that sweeps proudly o'er the far spreading sea,
Has been numbered and fashioned by the labor of me,
And the pure massive marble that strikes on the view,
Is chiselled and formed by the artizan too.

The smith, as he hums o'er the anvil a glee,
He toils not for honors, or power, not he;
He dreads not lost office, he seeks none to gain—
And the smithy's a king in his own proud domain.

The bravest of men from mechanics have sprung,
And the sweetest of lays mechanics have sung;
And the proudest of hearts mechanics should wear,
When conscious of right in their bosoms they bear.

A Hundred Years Ago.

Where, where are the birds that sang,
A hundred years ago?
The flowers that all in beauty sprang
A hundred years ago?
The lips that smiled,
The eyes that wild
In flashes shone
Soft eyes upon—
Where, oh where, are lips and eyes,
The maiden's smiles, the lover's sighs,
That lived so long ago!
Who peopled all the city street,
A hundred years ago?
Who filled the church with faces meek,
A hundred years ago?
The sneering tale
Of sister frail,
The plot that work'd
A brother's hurt,
Where, oh where, are plots and sneers,
The poor man's hope, the rich man's fears,
That lived so long ago?
Where are the graves that dead men slept
A hundred years ago?
Who were they the living wept
A hundred years ago?
By other men
That knew not them,
Their lands are tilled;
Their graves are filled;
Yet nature then was just as gay,
And bright the sun shone as to-day,
A hundred yeaas ago!

America, I Love thee still.

America, I love thee still!
There's glory in thy name—
There's brightness beaming from thy birth,
And honor from thy fame.
There's beauty in thy naked soil,
Bespeaking smiles of love;
Thy rocks and blooming wilds proclaim
Protection from above.

America, I love thee still!
Beneath thy valleys rest
The pilgrims of a tyrant's power—
Bright emblems of the blest;
And round them, clothed in silence, lies
The mouldering patriot's fame,
Embalmed in sacred Memory's fire—
Immortal honors claim.

America, I love thee still!
Thou art my native land!
Thy joys, so pure, can ne'er be found
Upon a foreign strand.
Tho' Pleasure's path and Fortune's smiles
In other climes seem fair,
The brightest of their hopes and joys
Can naught with thee compare.

America, I love thee still!
Resplendent glories gleam
Through all thy deeds; the sacred light
Shall ever be my theme.
Pure from the realm's of victory's sky,
The crown was given to thee;
'Midst starry lights eternal stands
The Orb of Liberty!

A Foolish Flock.—Several hundred sheep, near Rome, N. Y., being frightened by a locomotive and cars, escaped from their pen and rushed upon some ice, near a mill, when the ice giving way, they were precipitated into the mill stream, and 300 of them were drowned. It is a common thing for men to rush from safety into danger, but we have seldom known sheep to do it.

Coasting.—The boys of Albany have a fine time lately, in the merry exercise of sliding down the hill streets, and although several ladies have been tripped by the little rapid sleds, they were not disposed to complain, and the mirthful glee of the boys was not to be interrupted on that account. It might be well for the boys to be furnished with good bells, so that passengers crossing these streets might "look out for the engine while the bell rings."

Stage Accidents.—While Booth was performing Richard III., at Boston, one evening last week, he was severely injured by a piece of anthracite being thrown upon the stage. Rev. B. Chase, and several others, were much injured recently by the overturning of a stage, about 14 miles from Columbus, Miss.

Burning yet.—It is now more than five months since the occurrence of the great conflagration on Broad street, in this city, and the fire has continued burning ever since. Columns of smoke continue issuing from several points in the burnt district.

Communication on Improvements.

In our last number we alluded to a communication from Mr. E. J. Pierce, of Philadelphia, from which we present the following extracts, which will be read with interest, although our limits will not admit the communication entire. After some polite introductory remarks, the writer proceeds:

"I went to sea at an early age and have sailed in thirty-seven different sea-vessels on the ocean.—From thirty-seven different crews I gleaned much information besides that acquired by my own observations. These taught me that large vessels had many advantages over smaller ones,—billows, appalling to the latter could be contended with and subdued by the former, and I formed the idea that vessels could be built so large as to render the most billowy sea comparatively smooth, so as to present no obstacle to their motion. I read in 'Nicholson's Philosophy,' that the waves of the sea could not attain a crest above thirty-two feet,—that is to say, a base of sixteen feet below the surface and a cone of sixteen feet above the level of the sea. My own experience taught me that when the wind blew a hurricane the cones blew off the waves into the hollows and checked the vibration of the billows. The sea, in a hurricane, is almost a level surface, so that the greatest wave a ship has to contend with is no more than thirty-two feet, under any circumstances. Now I consider it perfectly practicable to build a ship that will be superior to such waves,—a ship that will move on her course at the rate of twenty miles an hour, disregarding all the obstacles that Neptune and Boreas can bring against her. I never thought a ship of 4,000 tons would be sufficiently large and ponderous to rule the waves; but I knew if I proposed a larger one in 1830, the project would not be considered. I thought I might pass for a sane man after a limited suggestion, but to declare my whole opinion at that time would cause me to be set down by all manner of men, as stark staring mad. I therefore deferred giving my opinion in extension until a ship of 4,000 tons had been built. At length came out the Great Britain, which, though not perfect, is the best modelled ship in the world. Had she been fitted with propellers like the Cambria, and with proportionate power, she could be forced 18 miles per hour under the ordinary circumstances in which she would be placed in favorable weather at sea. But the screw propellers had made men mad, and the great Iron Steamer was doomed to be a failure."

This communication was accompanied by a copy of a circular which was printed about sixteen years ago, and in which the author endeavored to draw the attention of the public to certain rational projects of vastly important improvements; but he soon discovered as many had done before him, that it was easier to advance a rational theory than to overcome existing prejudices. On the subject of the circular, Mr. Pierce remarks:

"It was not well received in this country. As soon as I had issued it my friends came around me and advised me not to circulate any more copies of it, that those who had read it exclaimed immediately that I was crazy; and that it would ruin my credit, and injure me in a pecuniary point of view very severely. Some of my relatives suppressed all the numbers that came into their hands, and regretted sorely that any of them had found their way far abroad beyond their reach. Although the circulars found no countenance in this country, they were appreciated in England, and originated the ocean steamers."

This communication is also accompanied with a drawing of a steam vessel, with paddle-wheels so constructed as to rise and fall with the undulation of the water, or be raised out of the water altogether when the vessel is to be propelled by sails. We had intended procuring an engraving of this, but as the connection of machinery between the engine and the wheels is not fully represented, we shall defer it for the present. We agree with Mr. Pierce, however, in the practicability of navigating the ocean by vessels built so long as not to be affected by the waves, especially if constructed on the model of the eliptical or revoloidal spindle. There would be no difficulty in constructing a vessel of sufficient strength on this plan, to the length of three thousand feet, though not exceeding thirty feet in diameter. Such a vessel, with the undulating paddle-wheels, might be expected to go ahead at the rate of 30 or 40 miles per hour, and be much safer than any vessels of ordinary models. But as it would be less practicable to convince capitalists of the practicability of such a project, than to construct and put such a vessel in successful operation, it is of little use to illustrate the subject unless it be for the benefit of future generations.

The Atlantic and Pacific Railroad.—Mr. Whitney, the enterprising projector of the grand project of a railroad to Oregon, proposes to extend the railroad directly from the landing on the Lake to the shores of the Pacific; and the route most convenient, under all circumstances, is that which strikes the range of the great Backbone Mountains by an elevation, so small as scarcely to be perceptible. The only real pass, or gap, is a part of the most direct line of the railroad. The whole country, if the rivers be avoided, seems to be a plain.

There is no doubt that a large majority in Congress are in favor of the construction of this road, and the only barrier to its immediate progress consists in the extravagant conditions on which Mr. Whitney proposes to construct it. He requires from Government a grant of land sixty miles wide, through the whole extent of the road, beyond the Missouri, although it is evident that the construction of the road would so far enhance the value of the land, that a strip ten miles wide would be amply sufficient to pay the expense of the road. If Government should decide to build the road, and on its completion sell off a sufficient quantity of land to pay the cost, it would be productive of immense advantage to the public.

To Glaziers.—In removing old glass, spread over the putty, with a small brush, a little muriatic acid and the putty will soon become soft.

Thoughts for the Working Men.

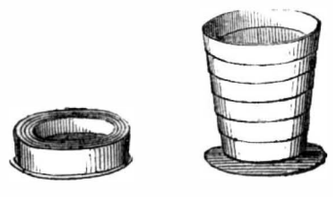
Existing abuses may be pointed out and and acknowledged, but they will never be cured by the aid or consent of that small class of men who profit by them. We see and hear great professions in behalf of suffering humanity, but we find no individual ready to make a personal sacrifice to improve its condition. In the first place, I must be sustained and fortified in the enjoyment of every sensual indulgence to which I am accustomed; then I will talk with you about the wants of the dear people—about benevolence and charity. The wrong end of society sets upon the upper spokes of the political ladder. The men who have wealth can take care of themselves in any situation. But to the preponderance which attaches to wealth under any circumstances, the rich, by the aid of combination, monopolize legislative and judicial power. Legislation is exclusively for the use and benefit of the rich, and the judicial administration of the law is regulated by the controlling influence of money. To a poor man, the law is an outrageous mockery. It is worse, it is an oppressor's rod. It is a two-edged sword which the rich only can wield, and from which the poor may only hope to escape. Justice is offered to all, and meeted out to him who can best pay for it.

Property, life and character, are in the hands of the law. The law is in the hands of the rich. The rich have leisure to combine, and the means to command legal talent, the pulpit and the press. While the great mass of society, who support the whole by useful labor, whose industry produces all, whose virtue and courage defend all, who hold the nation together, and without this aid the rich must toil or starve; that great body of useful men and women and children are scattered over the face of society, and fulfilling their duty in the most essential form to their country and their God, but neglecting and trusting to others the very important duty of self-government.

Our political rights are the same; we are all equal under our declaration of independence. But here the equality stops. The constitutions are defective. The laws are unjust, and their administration wicked. The rich prosper by this injustice, and will strive to continue and strengthen existing abuses. We can have no remedy, and justly hope for none, until the mass of common people the hard working mechanics, and farmers, the men of useful toil, whether corporeal or intellectual—the laboring millions combine, take the helm of state exclusively into their own hands, and save themselves, and save the nation from the political and social evils which are now hurrying us with fearful rapidity into the great vortex of buried nations.—[True Workingman.

The Hunter's Cup.

Fig. 1. Fig. 2.



A curious cup has been invented, consisting of a series of tin-plate rings, each being half an inch wide, and from two to three inches in diameter, made slightly conical and nicely fitted to each other. These rings being arranged, one within another, as shown in fig. 1, may be carried in the pocket as conveniently as an ordinary snuff-box: but when required for use, the outside ring is lifted up, till the lower edge of each ring binds the upper edge of the next below, and a convenient conical cup is instantly produced, as shown in fig. 2. This is called the hunter's cup, and is said to have been sometimes used: but its convenience for pedestrians in general is such as to merit more extensive attention and use, than it has hitherto attained.

WEIGHT AND PRESSURE OF STEAM IN DIFFERENT TEMPERATURES.

Temperature, pr. Farenheit. *Degrees.*	Pressure, pr. square inch. *lb.*	*oz.*	Weight, pr. cubic foot. *Grains.*
212	14	10	523
215	15	9	267
220	17	1	298
225	18	10	322
230	20	7	352
235	22	5	384
240	24	4	418
245	26	4	454
250	28	8	400
255	30	12	530
260	33	2	571
265	35	9	603
270	38	1	656
275	40	11	701
280	43	7	743
285	46	3	795
290	49	0	844
295	51	4	893
300	54	12	942
305	57	9	992
310	63	8	1041
315	64	0	1090
320	66	1	1138
325	14	14	1186

A Palpable Error.—There is a considerable movement in England, in favor of wooden railways, as a substitute for iron; and one writer on the subject avers that "an engine weighing ten tons, running on wood, will have more tractive power, than one weighing eighteen tons running on iron." But the fact is well known to every farmer, and may be readily proved to the satisfaction of any person, by a simple experiment, that the iron surface can be made to slide on wood with less friction than on iron. We would not object to the introduction of wooden rails, having no doubt of their utility when the timber is properly prepared; but we can not believe all that is said in its favor by those who are interested.

It is reported that in the city of Quebec, C. E., the snow was fifteen feet on the 5th inst.; and the thermometer stood ten degrees below zero.

The Magnetic Telegraph.

When the telegraph between Buffalo and Lockport was put in operation for the first time, much curiosity and wonder was excited, at both ends of the line, and many people assembled to witness the dexterous performance of the swift electro-messenger. The communications were on diverse subjects—politics, trade, friendship, &c. A Lockport miller was told the price of flour in New York, and the price of transportation then charged to Albany, and was asked if he wished a boat sent him, to load.—This he declined, at that price. He was then told "E. P. wants $1000." Not understanding the initials, he quickly asked—"Who wants $1000 of me?" "Your agent, to buy wheat." "Tell him I sent him that sum, in a draft, this morning, by the packet boat." Then came an inquiry from Lockport, touching the price of sheep's pelts, in this market. This was stated by one present, but not a dealer, and his statement, with his name transmitted. The prompt reply was, "I won't take him—send for H." H. was sent for, who confirmed the first price, and the querist, at Lockport, was then satisfied. A gentleman made an inquiry, and the reply came back, "You must wait until we can send to the clerk's office." This was announced to the querist by Mr. Carter, who informed him that it would probably take some ten minutes. With d look of grave disappointment the man exclaimed, "What! so long? *then I must call again!*"—and he immediately left the office.

This incident is peculiarly illustrative of human nature. This gentleman would have been content, a week before, to wait three days for an answer by the regular mail: but to wait ten minutes for a telegraphic answer, was too tedious to be endured.

A Valuable Work for Mechanics.

"Elementary and Higher Geometry, Trigonometry, and Mensuration,"—in four parts—by Nathan Scholfield,—is the title of a work just published by Messrs. Collins, Brother & Co., of this city, containing many valuable discoveries and improvements in mathematical science, especially in relation to the Quadrature of the Circle, and some other curves, as well as the cubature of certain curvilinear solids: designed as a text book for Collegiate and Academic instruction, and as a practical compendium on mensuration. The first part consists of the Elements of Plane Geometry, and the mensuration of plane figures. The second part consists of the Elements of Solid Geometry, and the mensuration of elementary solids. The third part treats of Spherical Geometry, Analytical Plane and Spherical Trigonometry, with their applications; the application of Algebra to Geometry; and on the Ellipse, Hyperbola and Parabola. The fourth part treats of the species and quadrature of the sections of a cone—the relations of cylindrical and conical segments and ungulas—a new class of curvilinear solids, termed revoloids, and of such other solids as are subjects of the Higher Geometry. Also, on some new curves, termed the revoloidal curve, and curve of the circle's quadrature; by the investigations of which, some important properties of the circle are developed, furnishing us with geometrical methods of approximating to the circle's quadrature to any desirable extent; and by the same investigations are developed means of computing the area of any segment of a circle, when the arc of the segment and its sine are given, with as little labor as that of a triangle whose base and perpendicular are known.

A new method of notation is also introduced, by which the relations of magnitudes, whose elements are a series of variable factors, may be intelligibly investigated; by means of which notation, is obtained a definite expression for the circle's quadrature, in positive and known functions of the diameter. The first principles of the differential and integral calculus are introduced, and the principles on which most of the operations of that science are performed, are rendered more intelligible by means of the notation above referred to. The series closes with the mensuration of such surfaces and solids as depend on the higher geometry.

The Elementary parts of the series, are based on Legendre's Elements, with various improvements and additions. This portion of the work, consisting of the first and second parts, is designed to be furnished separately from the whole series whenever it is required, in order to render it available in the primary institutions, or where the elements of the subject only are wanted.

Expansion of Water by Freezing.—The extraordinary power of expansion of water by freezing, is not generally known, but it may be illustrated by an incident which occurred at an iron foundry in Ohio, several years ago. An immensely large iron anvil, weighing between three and four tons, and measuring nearly three feet in diameter, had been left lying by the door of the furnace, exposed to the atmosphere. The anvil was perfectly solid, with the exception of a very small crack or crevice in the centre of one of the sides, about five inches long, and about four inches in depth, which from the rain, had become filled with water. The quantity of water which the crevice contained, could not have exceeded half a gill. In the course of the night of the 20th of December, this water become frozen, and extraordinary as it may appear, its expansion completely severed in two parts the immense mass of solid iron; and so great was its expansive power, that when the separation took place, a large log of wood which lay on the top of the anvil, was thrown to the distance of several feet.

The Millerites.—Some of the many fabrications about the people called Millerites, are, to say nothing of their absurdity, so decidedly silly, that it is surprising to see them copied into any respectable paper. That some of this sect—if sect it may be called,—are fanatical, is not to be denied: but that any bands or companies of them strip naked, dance, and roll on the floor, as has been reported, will not be credited by any man who has any acquaintance with the Millerites, or a decent share of common sense.

Triumph of Reason over Scepticism.—The astronomer Kirchner, having a friend who denied the existence of a Supreme Being, took the following method to convince him of his error:—Expecting him upon a visit, he procured a very handsome globe of the starry heavens, which being placed in a situation where it could not fail to attract his friend's observation, the latter seized the first occasion to ask whence it came, and to whom it belonged. "It does not belong to me," said Kirchner, "nor was it made by any person, but it came here by mere chance." "That," replied his sceptical friend, is absolutely impossible: you surely jest." Kirchner, however, seriously persisting in his assertion, took occasion to reason with his friend upon his own atheistical principles. "You will not," said he, "believe that this small body originated in mere chance; and yet you would contend that those heavenly bodies of which it is only a faint and diminutive resemblance, came into existence without order and design!" His friend was at first confounded; afterwards, when Kirchner pursued his reasoning, convinced, and ultimately joined in a cordial acknowledgment of the absurdity of denying the existence of a God.

A Loose Religion.—By this term we designate that religion, which is put off and on at convenience, which suits any person, is popular with all men, and which is of no value, in the sight of God. Such was the religion of Napoleon, who was a Catholic in Italy, a Protestant in Germany, a Mohammedan in Egypt, and an Atheist in France. Such, too, was the religion of Alexander, who devoutly worshipped the deities of every country, river, mountain, and sea, which he visited. Such, too, is the religion of many persons in the present day, who use it as a means of acquiring popular favor, and obtaining influence and preferment. They can coincide with any form of religion around them, and they are loud in their invectives against bigotry, because they, for their own part, have no religious opinion worth contending for, and they think that all others in this respect, should be like themselves. They are every thing and nothing. They are like all classes of errorists with whom they meet, and in the end they are really like nothing either in heaven above, or on the earth beneath. Like the chameleon, their color is so changeable, that you cannot describe it.—*Luth. Observer.*

The Voice of Nature.—The visible works of God speak to us with a commanding eloquence.—The sun, that fountain of life and heart of the world—that bright leader of the armies of heaven, enthroned in glorious majesty; the moon shining with a lustre borrowed from his beams; the stars glittering by night in the clear firmament; the air giving breath to all things that live and move; the interchanges of light and darkness; the course of the year, and the sweet vicissitudes of season; the rain and the dew descending from above, and the fruitfulness of the earth caused by them; the bow bent—by the hands of the Most High—which compasseth the heaven about with a glorious circle; the awful voice of thunder, and the piercing power of lightning; the instincts of animals, and the qualities of vegetables pnd minerals; the great and wide sea, with its innumerable inhabitants:—all these instruct us in the mysteries of faith and the duties of morality.

Presence of Children.—Never utter an improper expression in the presence of a child, who is capable of conversation. Remember, that a profane or obscene word thus spoken, will make an impression on the mind of the child, which it will not be in human power to erase; and which will grow up with him, and prove in some degree a curse to him during life. Break glasses, burn papers, or destroy furniture, sooner than soil the tender mind of a child.

An Important Fact.—Every glass of alcoholic drink that a human being takes does some violence to the delicacy of the complicated and beautiful system of his nicely adjusted structure—the nervous system—and every repetition of the glass destroys the harmony of one of those thousand strings of which his life is composed.

Growth of New Orleans.—The formation of land at New Orleans, by the wash of the river within the last forty years has been sufficient for the construction of four or five streets, between Levee street (which was formerly the front street,) and the present levee or bank of the river. It must be very convenient to have land thus formed just fast enough to accommodate the increase of population.

Good Fortune at last.—Mr. Thomas Lawrence, of Albany, a poor man about 70 years of age, has recently become heir to a fortune valued at several millions. How shameful that he could not have shared some of it earlier. It seems to be the determined maxim of many rich people, to studiously restrain their property from doing any good, while they retain power to control it.

Brilliant Sealing Wax.—We are in receipt of a few specimens of this article, of the most bright and beautiful colors, manufactured by Mr. Davids 112 John St. Mr D. also prepares an indellible marking ink, which is easily applied and will remain as long as the fabric on which it is applied endures, if not longer.

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D.L. Benson, R. S.

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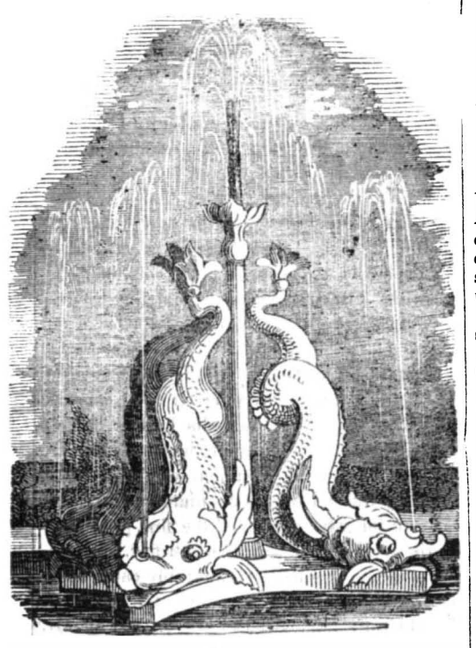

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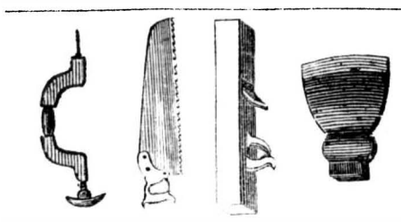

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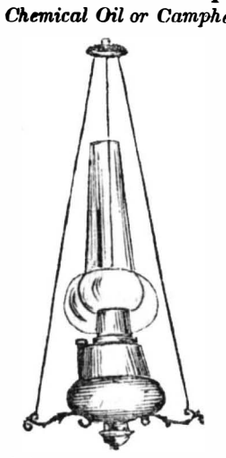

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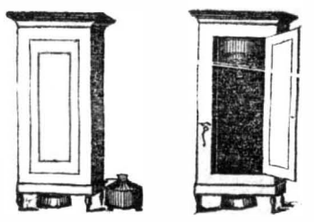

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